Claims:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

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15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

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29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, and

a single piece packing that surrounds said valve element and seals directly against said valve element within said valve cavity; wherein said valve element comprises a spherical ball and adjacent upper and lower cylindrical trunnions extending from the ball along said axis of rotation; wherein the ball has a maximum outer diameter D1 and at least one of the trunnions has an outer diameter D3, wherein a ratio of D3/D1 is 0.7 to 0.9.

39. (Previously Presented) The valve of claim 38 wherein the packing is dimensioned to be installed on said valve element within a room temperature range.

40. (Previously Presented) The valve of claim 39 wherein said room temperature range is about 65-100 °F.

41. (Previously Presented) The valve of claim 38 wherein said packing has a generally cylindrical outer surface that has a height H and an outer diameter D4, wherein the height H is a distance the cylindrical outer surface extends along said axis of rotation from a bottom surface of the packing to an upper surface of the packing, said packing having a ratio H/D4 of 0.75 to 0.85.

42. (Previously Presented) The valve of claim 41 wherein said ratio H/D4 is about 0.8.

43. (Canceled)

44. (Previously Presented) The valve of claim 38 wherein said ratio D3/D1 is about 0.8.

45. (Canceled)

46. (Previously Presented) The valve of claim 41 wherein said ratio H/D4 is about 0.8 and said ratio D3/D1 is about 0.8.

47. (Previously Presented) The valve of claim 38 wherein said packing comprises a polymer.

48. (Previously Presented) The valve of claim 47 wherein said polymer is selected from the group comprising polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

49. (Canceled)

50. (Previously Presented) The valve of claim 39 wherein said packing has an inner surface that forms an interference fit with said valve element when said packing is installed thereon prior to loading said packing within said valve body.

51. (Canceled)

52. (Previously Presented) The valve of claim 38 wherein said packing comprises a polymer that is selected from the group consisting of: PFA, filled PFA, polytetrafluoroethylene (PTFE), filled PTFE, polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Canceled)

57. (Canceled)

58. (Canceled)

59. (Previously Presented) The valve of claim 38 wherein said valve cavity comprises a reduced diameter bore that receives said lower trunnion and prevents packing material from creeping below said lower trunnion.

60. (Previously Presented) The valve of claim 38 wherein said packing is live loaded.

61. (Previously Presented) The valve of claim 38 wherein said packing comprises a plastic polymer.

62. (Previously Presented) The valve of claim 61 wherein said polymer comprises PTFE.

63. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, and

a single piece packing that surrounds said valve element; and seals said valve element within said valve cavity;

wherein said valve element comprises a ball and adjacent upper and lower cylindrical trunnions extending from the ball;

a lower end of said single piece packing seals directly against said lower cylindrical trunnion;

said lower cylindrical trunnion extending along said axis of rotation past a lowermost end of said packing;

said valve cavity including a reduced diameter counterbore being dimensioned to closely receive said lower cylindrical trunnion of said valve element, wherein a bottom end of the lower cylindrical trunnion is spaced apart along said axis of rotation from the reduced diameter

counterbore to allow said valve element to shift in two opposite directions along said axis of rotation of the valve element.

64. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, and

a packing that surrounds said valve element and seals said valve element within said valve cavity;

wherein said valve element comprises a ball and adjacent upper and lower cylindrical trunnions extending from the ball;

said lower cylindrical trunnion extending along said axis of rotation past a lowermost end of said packing;

said valve cavity including a reduced diameter counterbore being dimensioned to closely receive said lower cylindrical trunnion of said valve element, wherein a bottom end of the lower cylindrical trunnion is spaced apart from the reduced diameter counterbore to allow said valve element to shift along said axis of rotation of the valve element in two opposite directions.

65. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation;

a packing that surrounds said valve element and seals directly against said valve element within said valve cavity;

wherein said valve element comprises a ball and adjacent upper and lower trunnions;

said lower trunnion extending axially past a lowermost end of said packing;

load members that apply a load to the packing in a direction of the axis of rotation of the valve element over a range of temperatures while permitting said valve element to shift in two opposite directions along said axis of rotation of the valve element to compensate for temperature effects on said packing.

66. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, and

a single piece packing that surrounds said valve element and seals said valve element within said valve cavity, wherein the packing has a cylindrical outer surface with a height H and an outer diameter D4, wherein the height H is a distance the cylindrical outer surface extends along said axis of rotation from a bottom surface of the packing to an upper surface of the packing, wherein a ratio of H/D4 is 0.75 to 0.85;

wherein said valve element comprises a ball, adjacent upper and lower cylindrical trunnions extending from said ball, and a stem extending from the upper cylindrical trunnion for rotating said valve element about said axis of rotation, said stem having a smaller diameter than said upper trunnion.

67. (Previously Presented) The valve of claim 66 wherein said ball is a spherical ball.

68. (Previously Presented) The valve of claim 66 wherein a material of said packing is polytetrafluoroethylene (PTFE).

69. (Canceled)

70. (Canceled)

71. (Canceled)

72. (Previously Presented) The valve of claim 66 wherein said ball has a maximum outer diameter D1 and at least one of said trunnions having an outer diameter D3; wherein said valve element has a ratio D3/D1 of 0.7 to 0.9.

73. (Previously Presented) The valve of claim 66 wherein said packing is made from a material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

74. (Previously Presented) The valve of claim 66 wherein said packing comprises a polymer that is selected from the group consisting of: PFA, filled PFA, polytetrafluoroethylene (PTFE), filled PTFE, polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

75. (Previously Presented) The valve of claim 66 wherein said packing is live loaded.

76. (Previously Presented) The valve of claim 66 wherein the valve cavity comprises a reduced diameter counterbore that is sized to form a clearance fit between the lower trunnion and the counterbore that prevents a lower portion of the packing from extruding into the counterbore.

77. (Previously Presented) The valve of claim 66 wherein said valve cavity includes a reduced diameter counterbore that is spaced along said axis of rotation from said lower trunnion to allow said valve element to axially shift in the valve cavity along said axis of rotation in two opposite directions.

78. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein that includes a reduced diameter counterbore;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, and

a single piece packing that surrounds said valve element and has a cylindrical outer surface that is cylindrical about said axis of rotation of the valve element and seals said valve element within said valve cavity, said single piece packing having a height H and a diameter D4, wherein the diameter D4 is the diameter of the cylindrical outer surface and the height H is a distance the cylindrical outer surface extends along said axis of rotation from a bottom surface of the packing to an upper surface of the packing, wherein a ratio of H/D4 is 0.75 to 0.85;

wherein said valve element comprises a spherical ball, adjacent upper and lower cylindrical trunnions extending from said spherical ball along said axis of rotation, and a stem extending from the upper cylindrical trunnion for rotating said valve element about said axis of rotation, said stem having a smaller diameter than said upper trunnion, wherein the ball has a maximum outer diameter D1 and at least one of the trunnions has an outer diameter D3, wherein a ratio of D3/D1 is 0.7 to 0.9;

said lower trunnion extending axially past a lowermost end of said packing into said reduced diameter counterbore, wherein the reduced diameter counterbore is sized to form a clearance fit between the lower trunnion and the counterbore that prevents a lower portion of the packing from extruding into the counterbore;

wherein there is an axial gap between the reduced diameter counterbore and said lower trunnion that allows said valve element to axially shift in the valve cavity in two opposite directions.

79. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, wherein said valve element comprises a ball and adjacent upper and lower cylindrical trunnions extending from the ball,

a single piece packing that surrounds said valve element and has a cylindrical outer surface that is cylindrical about said axis of rotation of said valve element and seals directly against said valve element within said valve cavity; wherein said cylindrical outer surface of the single piece packing has a height H and a diameter D4, wherein the diameter D4 is the diameter of the cylindrical outer surface and the height H is a distance the cylindrical outer surface extends along said axis of rotation from a bottom surface of the packing to an upper surface of the packing, wherein a ratio H/D4 is 0.75 to 0.85.

80. (Canceled)

81. (Canceled)

82. (Previously Presented) The valve of claim 79 wherein said ball has a maximum outer diameter D1 and at least one of said trunnions having an outer diameter D3; wherein said valve element has a ratio D3/D1 of 0.7 to 0.9.

83. (Previously Presented) The valve of claim 82 wherein said packing is made from a material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

84. (Previously Presented) The valve of claim 83 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element.

85. (Previously Presented) The valve of claim 83 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element while the packing is at a temperature between 65-100° F.

86. (Previously Presented) The valve of claim 66 wherein the cylindrical outer surface of the packing is cylindrical about said axis of rotation of the valve element.

87. (Previously Presented) The valve of claim 72 wherein said packing is made from a material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

88. (Previously Presented) The valve of claim 87 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element.

89. (Previously Presented) A valve comprising:

a valve body having a valve cavity therein;

a valve element for controlling flow through the valve based on a rotational position of the valve element about an axis of rotation, wherein said valve element comprises a ball and adjacent upper and lower cylindrical trunnions extending from the ball, wherein the ball has a maximum outer diameter D1 and at least one of the trunnions has an outer diameter D3, wherein a ratio of D3/D1 is 0.7 to 0.9;

a single piece packing that surrounds said valve element and seals directly against said valve element within said valve cavity; wherein said single piece packing has a height H and an outer diameter D4, wherein the height H is a distance the cylindrical outer surface extends along said axis of rotation from a bottom surface of the packing to an upper surface of the packing, wherein a ratio H/D4 is 0.75 to 0.85;

wherein said packing comprises a polymer that is selected from the group consisting of: PFA, filled PFA, polytetrafluoroethylene (PTFE), filled PTFE, polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene.

99. (Previously Presented) The valve of claim 89 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the

group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element.

91. (Previously Presented) The valve of claim 89 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element while the packing is at a temperature between 65-100° F.

92. (Canceled).

93. (Previously Presented) The valve of claim 87 wherein the D3/D1 ratio of 0.7 to 0.9 and the H/D4 ratio of 0.75 to 0.85 allow the packing made from the material selected from the group consisting of polytetrafluoroethylene (PTFE), polyethylene, polyetheretherketone (PEEK) and fluorinated ethylene propylene to be snap fit onto the valve element while the packing is at a temperature between 65-100° F.